

CLAIMS

1. A monoclonal antibody capable of specifically recognizing a rapamycin.
2. A monoclonal antibody according to claim 1 capable of recognizing an epitope on the FKBP-binding portion of a rapamycin.
3. A monoclonal antibody according to claim 1 capable of recognizing an epitope on the effector portion of a rapamycin.
4. A monoclonal antibody according to any one of claims 1 through 3, obtained or obtainable by:
  - a) reaction of a rapamycin having an activated coupling group with an immunogenic protein to produce an immunogenic conjugate,
  - b) administration of said immunogenic conjugate to an appropriate animal species to effect immunogenic challenge and recovery of antibody-producing cells sensitized to said conjugate,
  - c) immortalization of said antibody-producing cells, and
  - d) recovery of monoclonal antibody from a selected immortalized cell line thus established.
5. A monoclonal antibody according to any one of claims 1 through 4 wherein the rapamycin is (i) rapamycin; or (ii) a 40-O-alkylated rapamycin, preferably wherein the 40-O-alkyl substituent is selected from hydroxyalkyl, hydroxyalkoxyalkyl, acylaminoalkyl, or aminoalkyl.
6. A monoclonal antibody according to claim 5 wherein the rapamycin is selected from
  - i) 40-O-(2-hydroxyethyl)-rapamycin,
  - ii) 40-O-(3-hydroxypropyl)-rapamycin,

- iii) 40-O-[2-(2-hydroxy)ethoxy]ethyl-rapamycin, and
- iv) 40-O-(2-acetaminoethyl)-rapamycin).

7. A monoclonal antibody according to any of the preceding claims capable of distinguishing between rapamycin and a 40-O-alkylated rapamycin as described in claim 5 or 6.
8. An immunogenic conjugate comprising a rapamycin portion and a protein portion.
9. An immunogenic conjugate according to claim 8 which is produced by reacting a protein with a rapamycin derivative bearing an activated coupling group.
10. An immunogenic conjugate according to claim 9 wherein the rapamycin derivative is selected from
  - i) 40-O-succinimidooxysuccinyl-rapamycin,
  - ii) 28-O-succinimidooxysuccinyl-rapamycin, or
  - iii) 28-O-(succinimidooxysuccinyl)-40-O-(2-hydroxyethyl)-rapamycin.
11. A rapamycin having an activated coupling group.
12. A rapamycin according to claim 11 selected from
  - i) 40-O-succinimidooxysuccinyl-rapamycin,
  - ii) 28-O-succinimidooxysuccinyl-rapamycin, or
  - iii) 28-O-(succinimidooxysuccinyl)-40-O-(2-hydroxy)ethyl-rapamycin.
13. A hybridoma cell line capable of producing a monoclonal antibody as defined in any one of claims 1 through 7.
14. An immunoassay kit for measuring the blood level of a rapamycin, comprising a monoclonal antibody as defined in any one of claims 1 through 7.